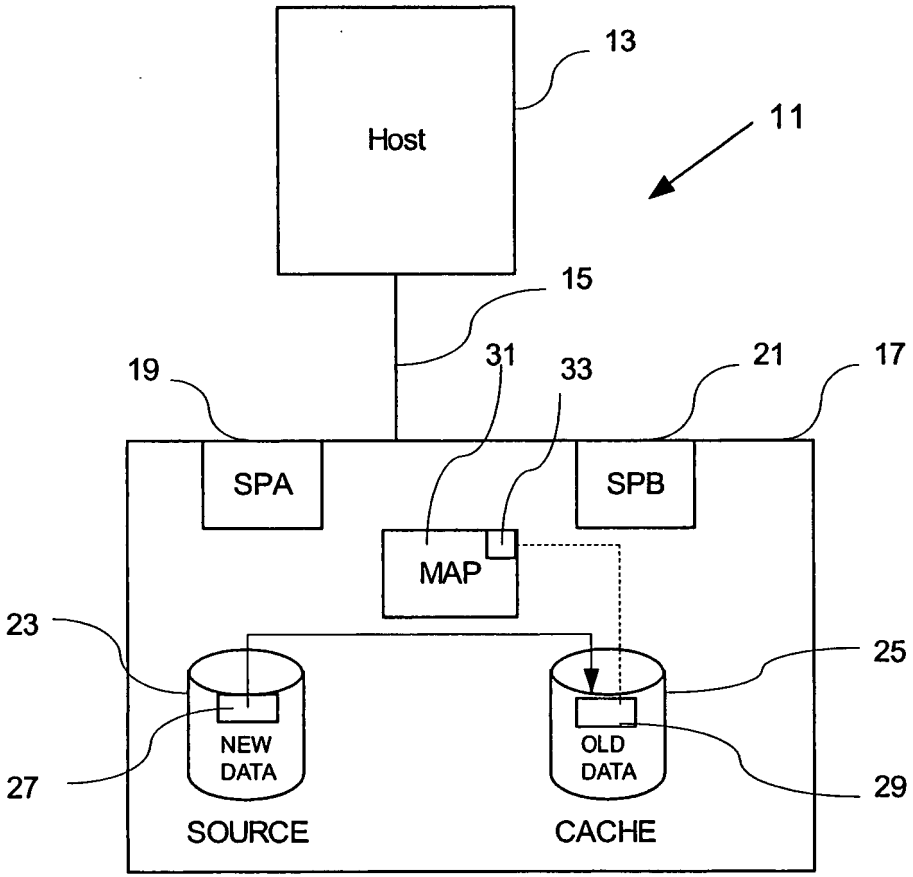


Fig. 1

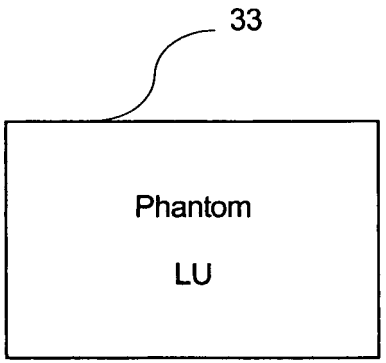


Fig. 2

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JC105

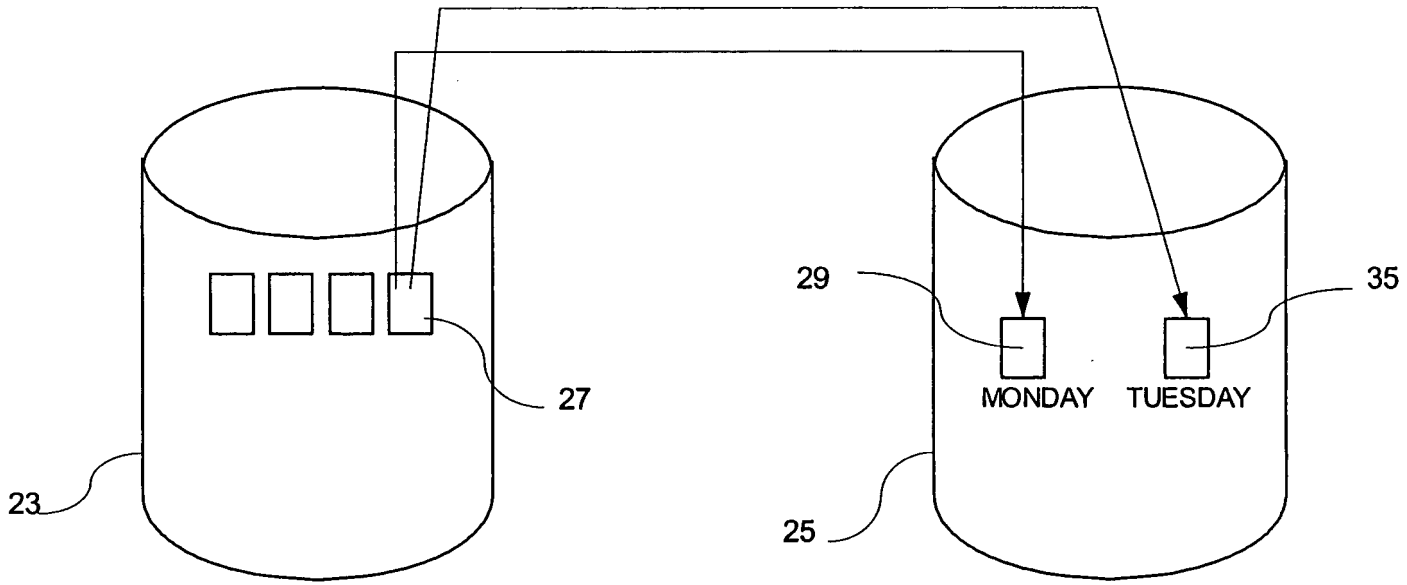


Fig. 3

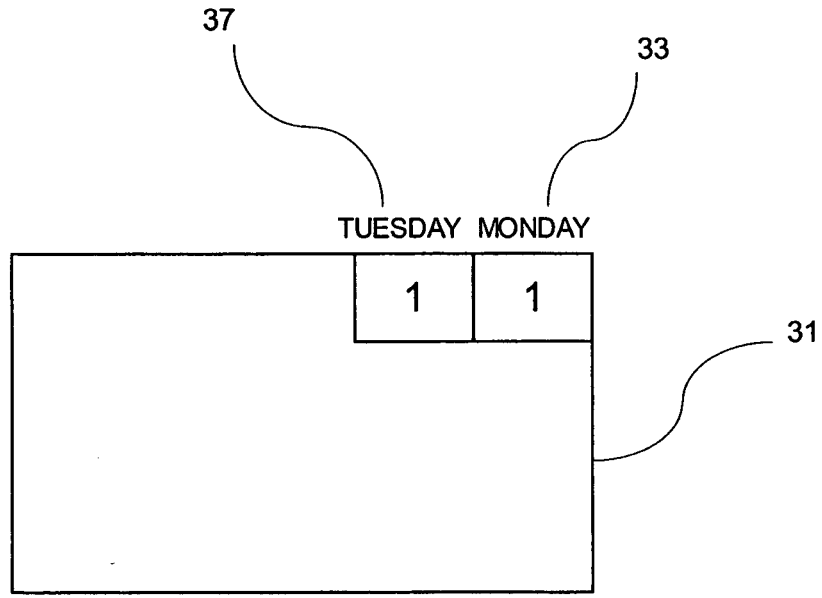


Fig. 4

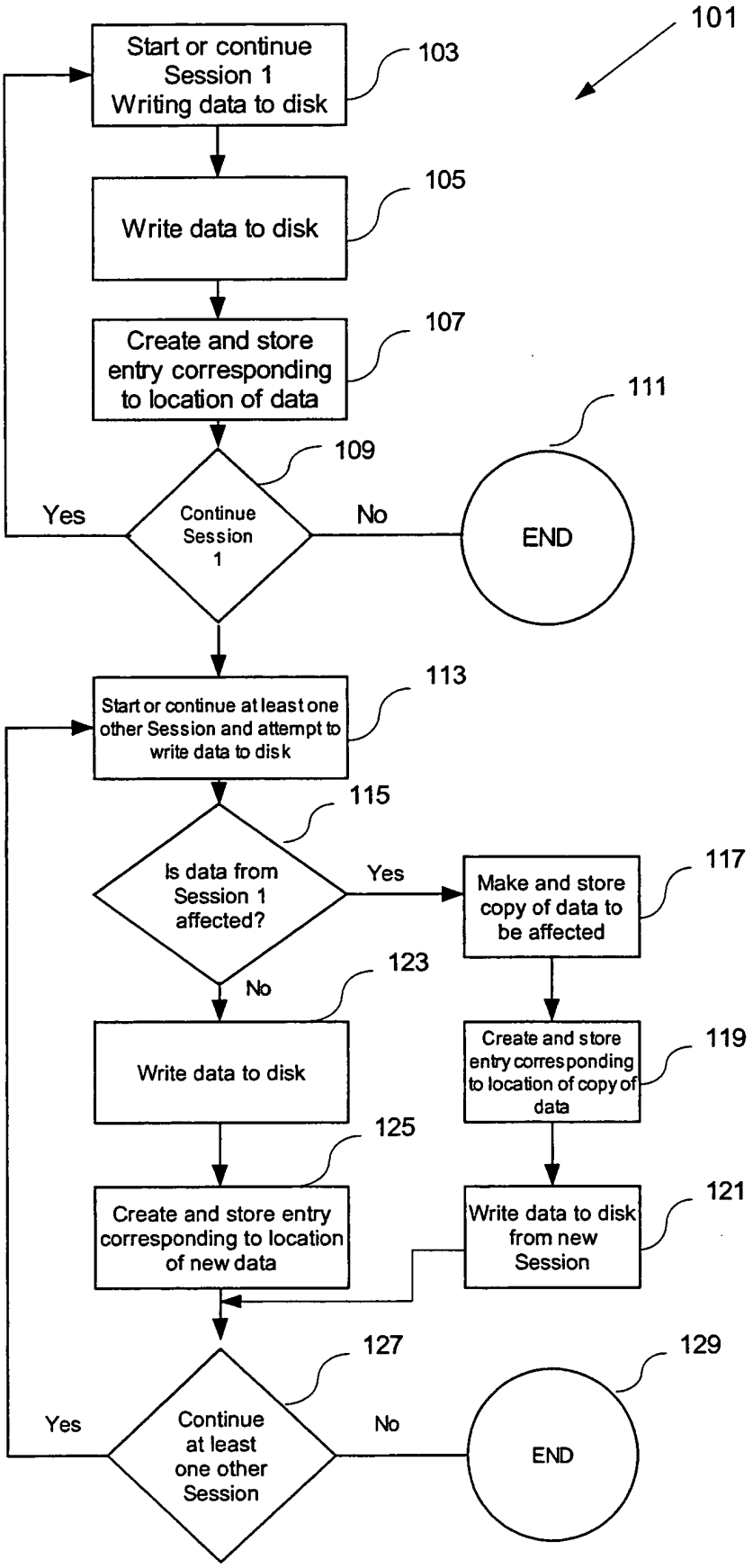
101
Start or continue Session 1 Writing data to disk
103
Write data to disk
105
Create and store entry corresponding to location of data
107
111
109
Continue Session 1
Yes
No
END
Start or continue at least one other Session and attempt to write data to disk
113
115
Is data from Session 1 affected?
Yes
117
Make and store copy of data to be affected
No
123
Write data to disk
Create and store entry corresponding to location of copy of data
119
125
Create and store entry corresponding to location of new data
Write data to disk from new Session
121
127
129
Continue at least one other Session
Yes
No
END

Fig. 5

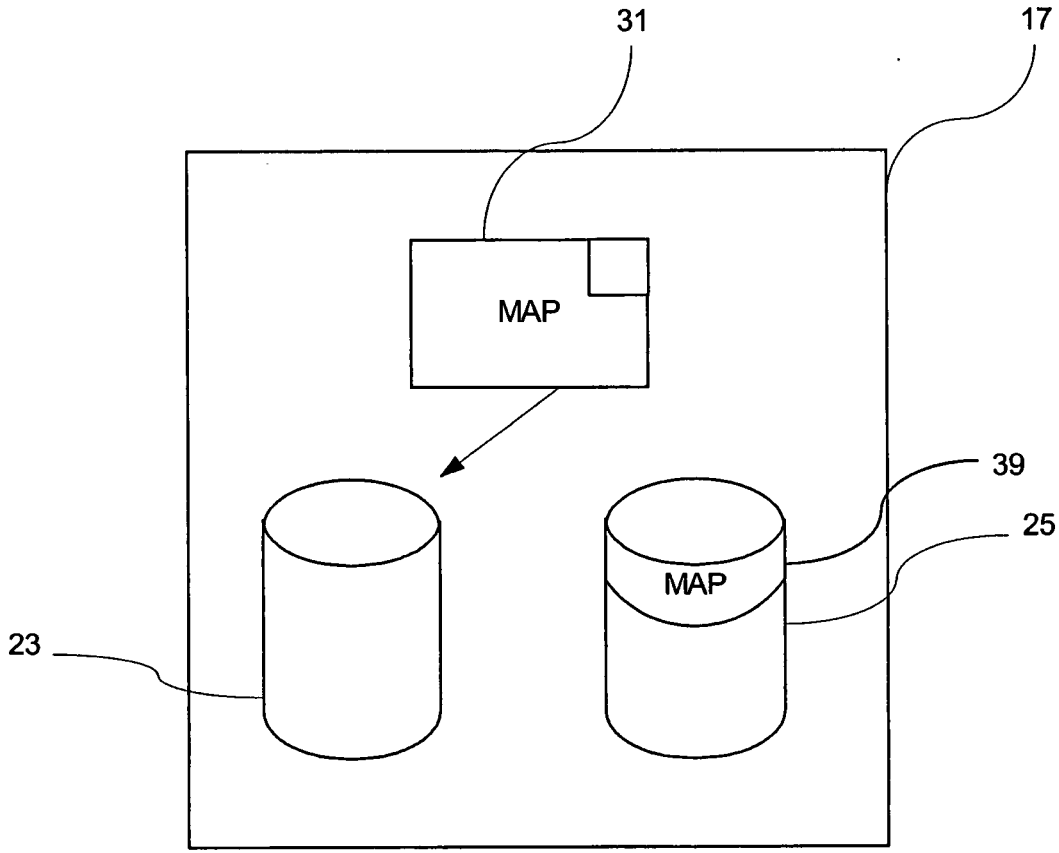


Fig. 6

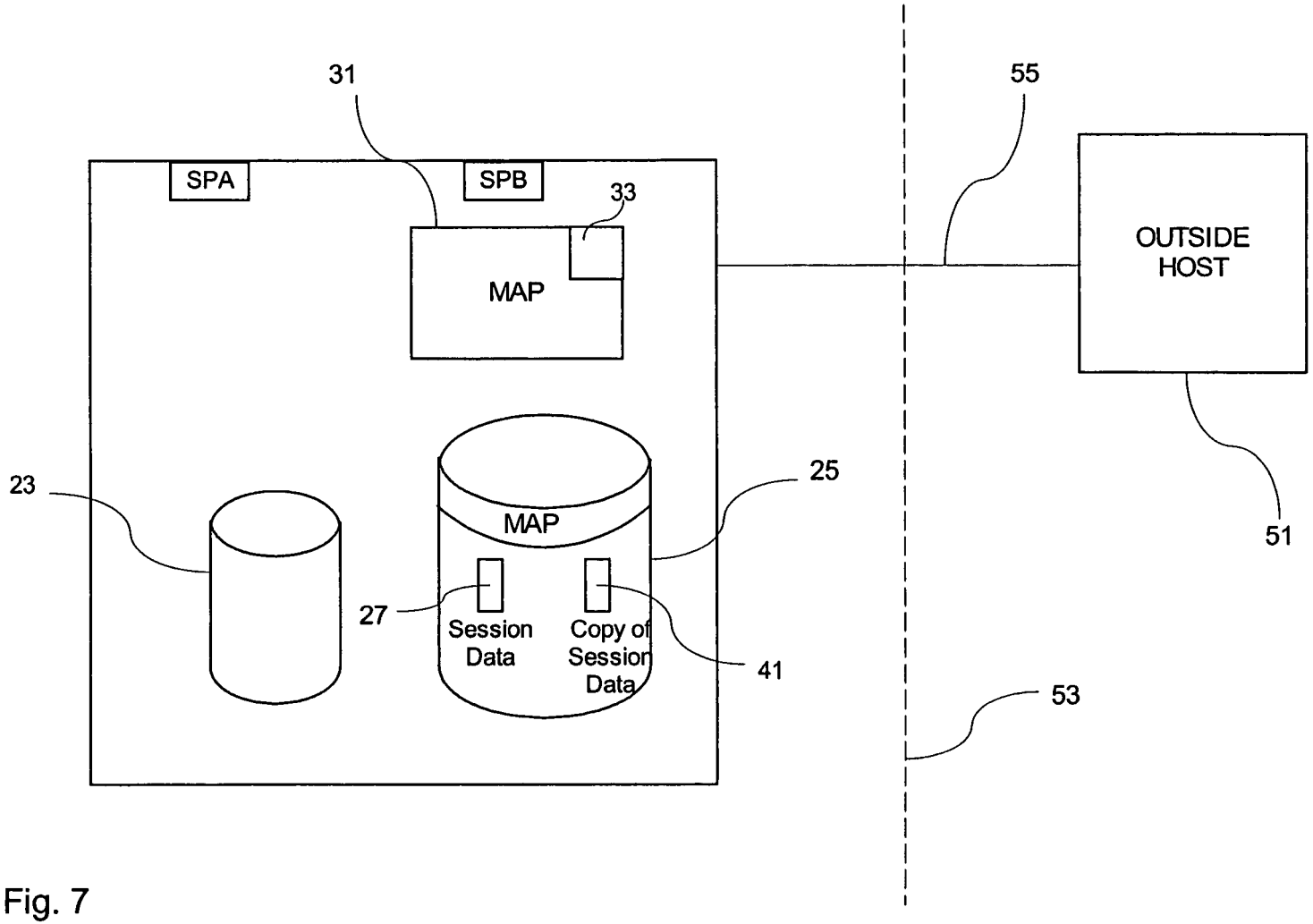
31
55
SPA
SPB
33
MAP
OUTSIDE HOST
23
25
MAP
51
27
Session Data
Copy of Session Data
41
53

Fig. 7

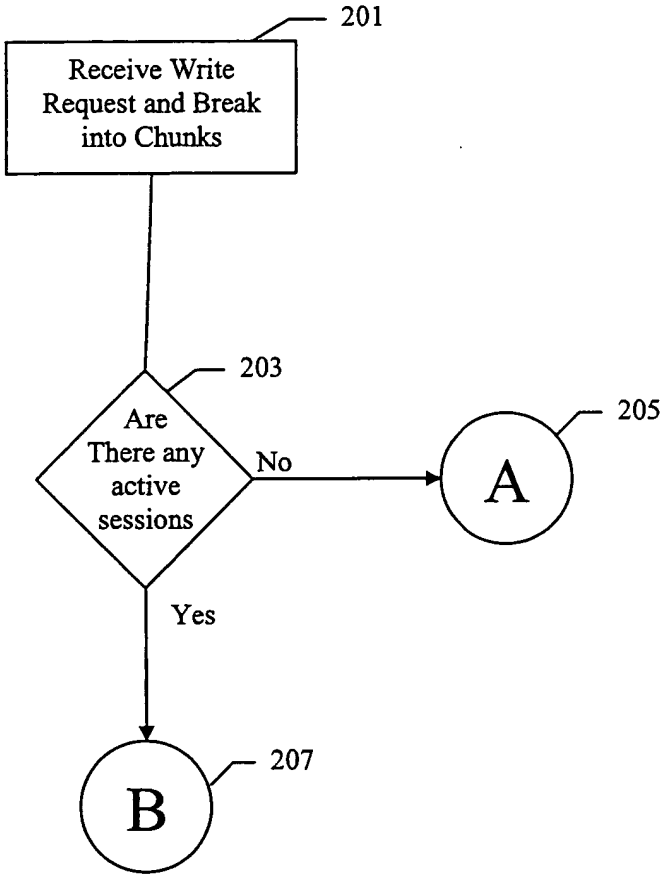
201
Receive Write Request and Break into Chunks
203
Are There any active sessions
No
205
A
Yes
207
B

Fig. 8a

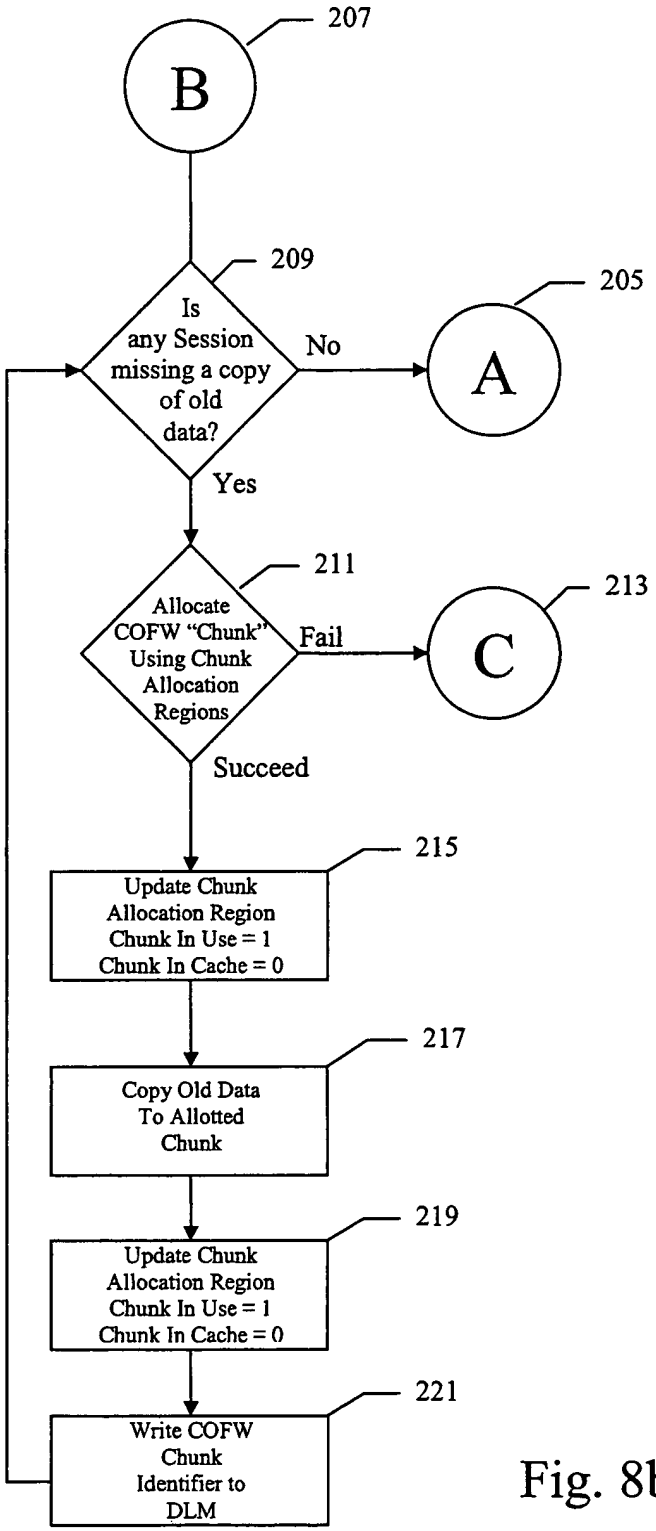
B
207
Is any Session missing a copy of old data?
209
No
A
205
Yes
Allocate COFW "Chunk" Using Chunk Allocation Regions
211
Fail
C
213
Succeed
Update Chunk Allocation Region Chunk In Use = 1 Chunk In Cache = 0
215
Copy Old Data To Allotted Chunk
217
Update Chunk Allocation Region Chunk In Use = 1 Chunk In Cache = 0
219
Write COFW Chunk Identifier to DLM
221

Fig. 8b

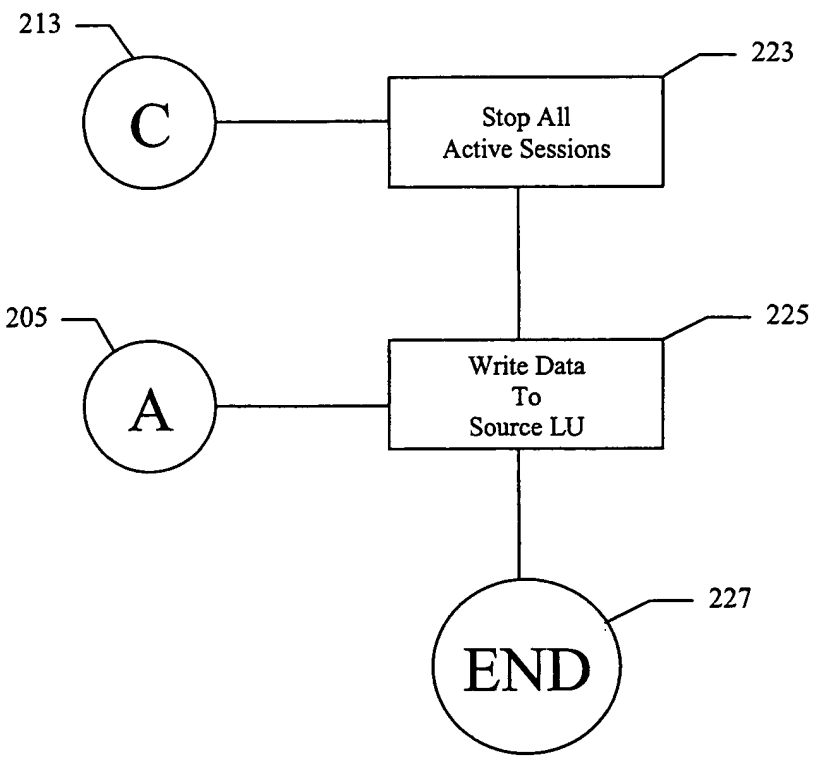
213
C
223
Stop All
Active Sessions
205
A
225
Write Data
To
Source LU
227
END

Fig. 8c

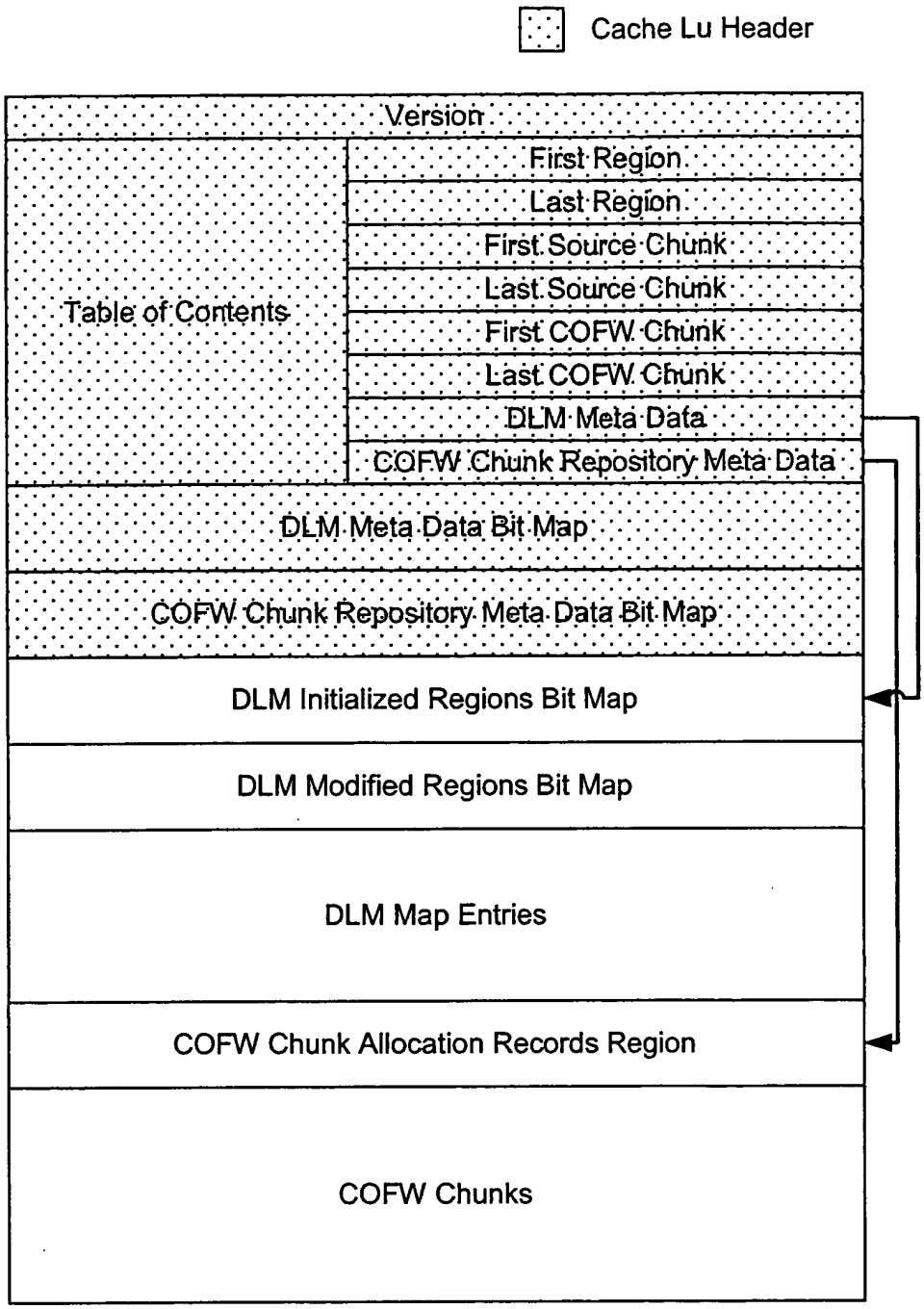
Cache Lu Header
Version
Table of Contents
First Region
Last Region
First Source Chunk
Last Source Chunk
First COFW Chunk
Last COFW Chunk
DLM Meta Data
COFW Chunk Repository Meta Data
DLM Meta Data Bit Map
COFW Chunk Repository Meta Data Bit Map
DLM Initialized Regions Bit Map
DLM Modified Regions Bit Map
DLM Map Entries
COFW Chunk Allocation Records Region
COFW Chunks

Fig. 9

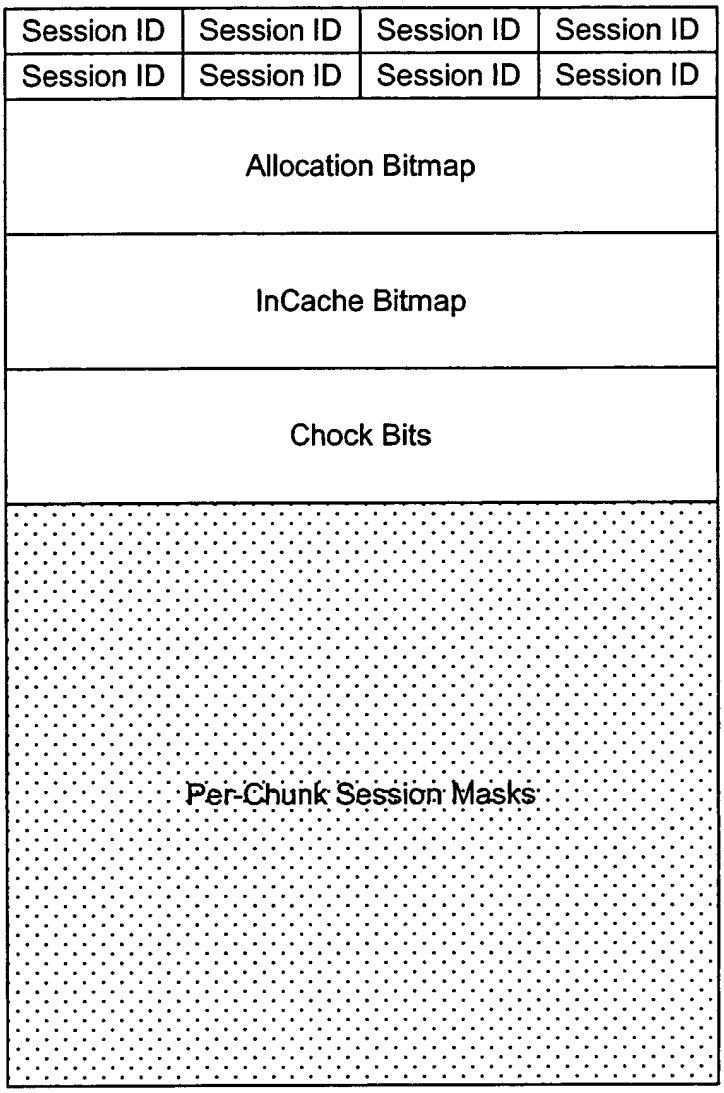
Session ID
Session ID
Session ID
Session ID
Session ID
Session ID
Session ID
Session ID
Allocation Bitmap
InCache Bitmap
Chock Bits
Per-Chunk Session Masks

Fig. 10

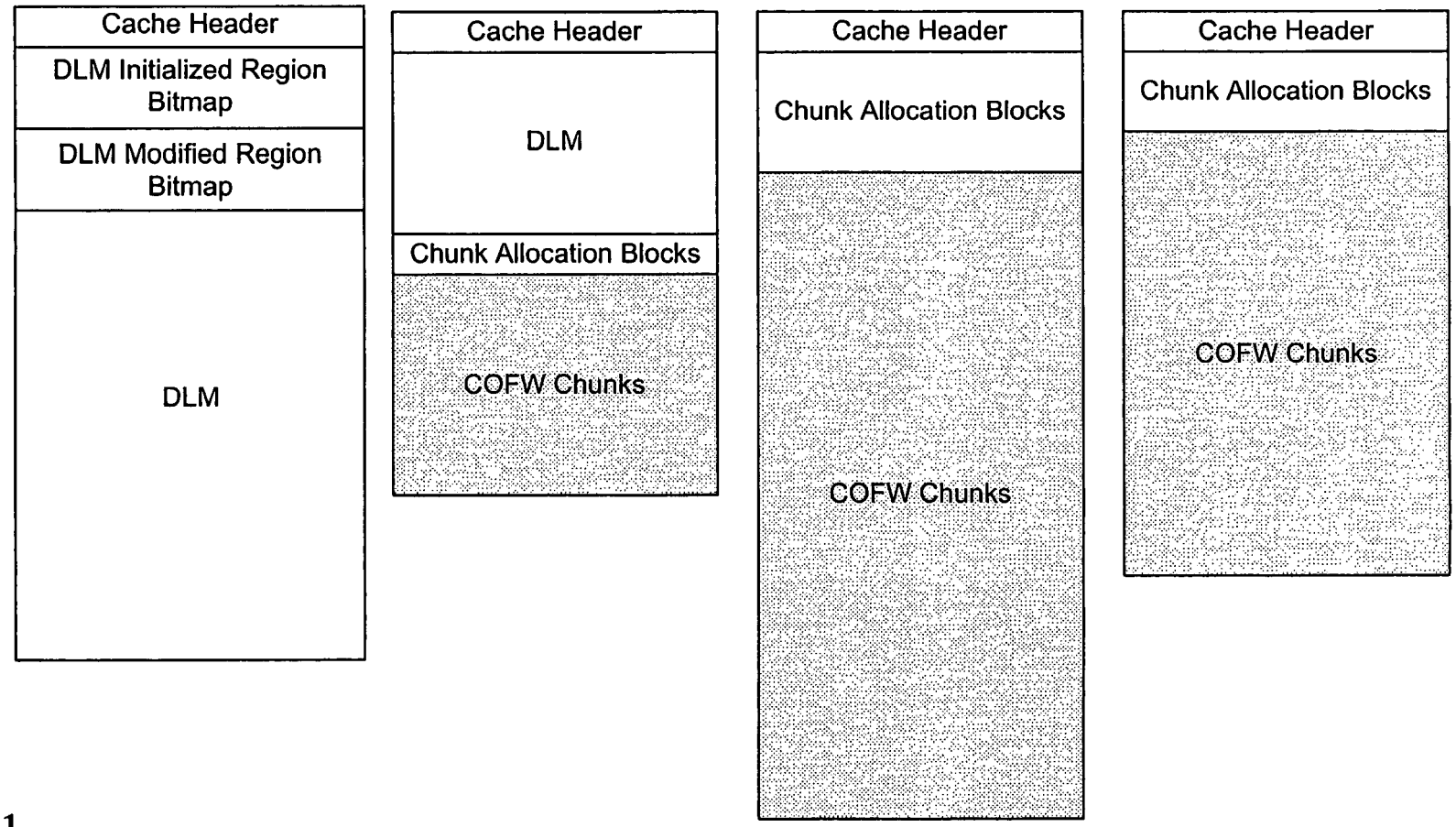
Cache Header
DLM Initialized Region Bitmap
DLM Modified Region Bitmap
DLM
Cache Header
DLM
Chunk Allocation Blocks
COFW Chunks
Cache Header
Chunk Allocation Blocks
COFW Chunks
Cache Header
Chunk Allocation Blocks
COFW Chunks

Fig. 11